

REMARKS

Claims 12-18, 20-23, 25-28 and 30 are pending. By this Amendment, claim 17 is amended to incorporate the features of claim 19, claim 22 is amended to incorporate the features of claim 24, claim 20 is amended to depend from claim 17, claim 25 is amended to depend from claim 22, claims 19, 24, 29 and 31 are canceled, and claims 12, 14-18, 20-22, 25, 28 and 30 are amended for clarity. No new matter is added by the amendments.

Claims 12, 14, 16-18 and 21 stand rejected under 35 U.S.C. §103(a) over De Doncker (U.S. Patent No. 5,373,195) in view of Deng (U.S. Patent No. 6,714,424). The rejection is respectfully traversed.

De Doncker in view of Deng fails to disclose or render obvious all the features recited in independent claim 12. Specifically, De Doncker and Deng fail to disclose the feature "...a control device controlling a switching duty...so that an influence of a dead time of said voltage converter is removed, when a voltage command value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage" as recited in independent claim 12. In Deng, the algorithm flow chart for generating the time delay chart of Fig. 5 does not determine when a voltage command value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage. See Figs. 8 and 9. Deng's dead time compensation architecture 400 is shown in Fig. 4. Architecture 400 receives feedback from the output current of inverter 100 in order to provide dead-time compensation to the inverter switch 110 and 130. See col. 4, lines 20-39 and Figs. 1 and 4. Fig. 4 discloses Deng's time generator and compensator (DTGC) 451 contained within the switch control module 450 which controls the switching of switches 110 and 130. See col. 4, lines 23-39. Fig. 5 depicts the time diagram of the DTGC 450 shown in Fig. 4. Time diagrams for the signals that drive the beats TA1 and TA2 shown in Fig. 1 are depicted in Fig. 5 as TA1+, TA2+ and TA1- and TA2-. As can be seen in Fig. 5 there is a quarter of the pulse width module cycle delay to

eliminate the effective dead-time. See col. 6, lines 29-30. Thus, Deng does not remove an influence of dead-time "when a voltage command value of conversion is at least a power supply voltage and at most a predetermined voltage" as recited in independent claim 12.

De Doncker discloses a system including a buck-boost converter and as discussed above, Deng discloses that the pulse is not generated when the PWM pulse width is smaller than a predetermined width. Thus, one of ordinary skill in the art would not have modified De Doncker in view of Deng to obtain the feature "a controller device controlling...so that an influence of dead time of said voltage converter is removed, when a voltage command of value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage". Accordingly, claim 12 and its dependent claims are patentable.

Independent claim 17 has been amended to incorporate the features of claim 19. De Doncker in view of Deng fails with respect to claim 17 for reasons similar to those explained above with respect to claim 12. Specifically, Deng fails to disclose a feature corresponding to "...said control device controls switching of said upper arm and said lower arm by fixing said on-duty at said appropriate on-duty, when said first on-duty calculated based on said voltage command value is larger than a maximum effective on-duty and smaller than the longest on-duty allowing said upper arm to be turned on continuously during a control period". Thus, claim 17 is patentable. Accordingly, claims 18 and 21 also are patentable for at least the reasons recited with respect to claim 17. Withdrawal of the rejections is requested.

Claims 13, 15, 19-20 and 22-31 stand rejected under 35 U.S.C. §103(a) over De Doncker in view of Deng and in further view of Kanakubo (U.S. Patent No. 6,580,253). The rejection is respectfully traversed.

De Doncker in view of Deng in further view of Kanakubo fails to disclose or render obvious all the features recited in amended claims 17 and 22 (which now include the features of claims 19 and 24). Specifically, De Doncker, Deng and Kanakubo fail to disclose or

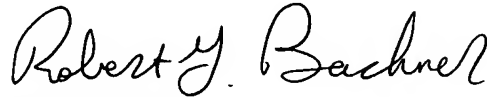
render obvious the feature "determining if said calculated first on-duty is larger than said maximum effective on-duty and smaller than a longest on-duty and allowing said upper arm to be turned on continuously during a control period based on said determination". De Doncker in view of Deng fail for reasons similar to those explained above with respect to claim 12. Kanakubo fails to overcome the deficiencies of Deng. Thus, claims 17 and 22 are patentable. Accordingly claims 13, 15, 20, 23, 25-28 and 30 also are patentable for at least the reasons of their corresponding independent claims. Withdrawal of the rejection is respectfully requested.

Claims 12 and 14 stand provisionally rejected on the grounds of non-statutory obviousness-type double patenting over claims 1, 12 and 15 of co-pending Application No. 11/274,511. Applicant respectfully requests that the rejection be held in abeyance until the issuance of one of the applications.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of all pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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